A fourth prior art process is described by L.W. Cheng et al., Thin Solid Films, 355-356, 412 (1999). In this process, a single crystal silicon substrate is implanted with nitrogen ions prior to doping the source/drain junction. Additional procedures including doping the source/drain junction, depositing nickel onto silicon, and annealing the sample are then performed. Nitrogen ion implantation is found to slow down dopant diffusion and delay transformation from nickel mono-silicide to nickel-disilicide during the high temperature annealing. The process controls dopant transport in shallow source/drain junctions in silicon, but does not improve silicidation of nickel on poly-silicon device structures such as gates. Furthermore, source/drain dopants (particularly Boron) were poorly activated.

IN THE CLAIMS

Please amend Claim 1 and Claim 3 as follows:

1. A method of nickel silicidation comprising:

forming a processed substrate including partially fabricated integrated circuit components and a silicon substrate;

incorporating nitrogen into said processed substrate and annealing the processed substrate;

depositing nickel onto said processed substrate after incorporating nitrogen into said processed substrate; and

annealing said processed substrate so as to form nickel mono-silicide.

3. The method as in claim 2, wherein said forming a processed substrate comprises:

forming dielectric regions in said silicon substrate that electrically isolate neighboring integrated circuit devices;

doping a portion of said silicon substrate with an n-type and a p-type doping to form said source/drain structures;